Claims:

1. A thin-film assembly including a substrate and at least one electronic thin-film component applied on the substrate by thin-film technology, wherein a base electrode (4) is provided on the substrate, on which base electrode thin-film layers (21) forming part of the thin-film component are arranged together with an upper top electrode (9), characterized in that the substrate is comprised of a printed circuit board (2) including an insulation-material base body (3) and a metal coating as the conductor layer (5), that the conductor layer (5) forms the base electrode (4) and, to this end, is smoothed at least on the location of the thin-film component, and that a contact layer (18) in thin-film technology is privided between the smoothed, optionally reinforced, conductor layer (5) and the superimposed thin-film layers (21) of the thin-film component, which contact layer is physically or chemically adsorbed on the surface of the base electrode (4).

2. A thin-film assembly according to claim 1, characterized in that via connections are provided in the printed circuit board (2) for the electronic contacting of the electrodes through the base body (3) of the printed circuit board (2).

3. A thin-film assembly according to claim 1 or 2, characterized in that a feedthrough (6) to the base electrode (4) is provided in the printed circuit board (2) directly below the base electrode (4).

4. A thin-film assembly according to any one of claims 1 to 3, characterized in that the smoothed conductor layer (5), over surface areas having the dimensions of 20 x 20 μm^2 (micro-roughness), exhibits a maximum mean surface roughness of 10 nm and, preferably, 3 nm.

5. A thin-film assembly according to any one of claims 1 to 4, characterized in that a contact layer (22) is also provided below the top electrode (9).

6. A thin-film assembly according to any one of claims 1 to 5, characterized in that the contact layer (18; 22) also constitutes a passivation layer for the electrode.

7. A thin-film assembly according to any one of claims 1 to 5, characterized in that the contact layer (18; 22) also constitutes a stabilization layer for the adherence between the elec-

trode and the adjacent thin-film layer.

8. A thin-film assembly according to any one of claims 1 to 7, characterized in that the contact layer (18; 22) is a metallic layer made, e.g., of aluminum, gold, palladium platinum or a metal alloy, or carbon, or a semi-conductive compound.

9. A thin-film assembly according to any one of claims 1 to 7, characterized in that the contact layer (18; 22) is formed by a conductive suspension or solution, e.g., based on polyaniline, polyethylene dioxithiophene/polystyrenesulfonic acid.

10. A thin-film assembly according to any one of claims 1 to 9, characterized in that a thin-film passivation layer (20) is applied on exposed base body zones uncovered from the conductor layer (5), said passivation layer preventing the contamination of the respective thin-film component by substances emerging from the base body (3).

11. A thin-film assembly according to claim 10, characterized in that the passivation layer (20) is made of silicon dioxide, a sol-gel system or an epoxy compound.

12. A thin-film assembly according to any one of claims 1 to 11, characterized in that the top electrode (9) and, optionally, also the contact layer (22) provided therebelow are designed to be at least translucent and, preferably, transparent.

13. A thin-film assembly according to claim 12, characterized in that an electroluminescent device is provided as said thin-film component (24).

14. A thin-film assembly according to claim 13, characterized in that local base electrodes (4) having individual feedthroughs (6) are provided on the printed circuit board (2) within an insulating grid structure, with a planar electroluminescent thin-film system as well as a planar, or strip-wisely or symbol-wisely patterned, top electrode (9) being arranged thereabove.

15. A thin-film assembly according to claim 12, characterized in that a light-emitting diode is provided as said thin-film component.

16. A thin-film assembly according to claim 12, characterized in that a photovoltaic assembly is provided as said thin-film component.

17. A thin-film assembly according to any one of claims 1 to 12, characterized in that a sensor, in particular an optical sensor or a temperature sensor, is provided as said thin-film compon-

ent.

18. A thin-film assembly according to any one of claims 1 to 12, characterized in that a diode (30) is provided as said thin-film component.

19. A thin-film assembly according to any one of claims 1 to 12, characterized in that a transistor, in particular a field-effect transistor (40), is provided as said thin-film component.

20.A thin-film assembly according to any one of claims 1 to 12, characterized in that a snubber is provided as said thin-film component.

21. A thin-film assembly according to any one of claims 1 to 12, characterized in that a resistor and/or a capacitor is provided as said thin-film component.

22. A thin-film assembly according to any one of claims 1 to 21, characterized in that an encapsulation (10) is associated with said thin-film component.

23. A thin-film assembly according to claim 22, characterized in that said encapsulation (10) is designed to be translucent or transparent.

24. A thin-film assembly according to claim 22 or 23, characterized in that an enclosed gas volume (11) is present within said encapsulation (10).

25. A thin-film assembly according to claim 23 or 24, characterized in that said encapsulation carries color converting and/or index matching layers (12) in alignment with the local base electrodes.

26. A thin-film assembly according to any one of claims 1 to 25, characterized in that the printed circuit board (2) is a flexible printed circuit board known per se.

27. A thin-film assembly according to claim 26, characterized in that the thin-film component has a flexible structure.

28. A thin-film assembly according to claim 26 or 27 as far as dependent on any one of claims 22 to 25, characterized in that said encapsulation (10) is flexible, consisting, e.g., of a thin glass laminate or a polymer-oxide composite layer system.

29. A thin-film assembly according to claim 28, characterized in that said encapsulation (10) is attached to the thin-film component (8) via an adhesion-promoting layer (44).

30. A thin-film assembly according to claim 28 or 29, characterized in that said encapsulation (10), via a passivation layer

(45) serving as a barrier layer against moisture and air, is provided above the thin-film component (8), optionally above the adhesion-promoting layer (44).

31. A thin-film assembly according to any one of claims 28 to 30, characterized in that the thin-film component (8) is provided in the neutral plane (48) between the flexible printed circuit board (2) and the flexible encapsulation (10).

32. A thin-film assembly according to any one of claims 26 to 31, characterized in that the flexible printed circuit board (2) is transparent or translucent.

33. A thin-film assembly according to any one of claims 26 to 32, characterized by a configuration as a roll-up or folding sheeting material (61).

34. A method for producing a thin-film assembly including at least one electronic thin-film component which is applied on a substrate by thin-film technology, characterized in that a printed circuit board with an insulation-material base body and a metal coating as the conductor layer is used, that the conductor layer is at least locally smoothed, optionally upon attachment of a reinforcement, in order to form at least one base electrode for the thin-film component, and that a contact layer is applied on the base electrode by thin-film technology prior to attaching the remaining thin-film component thereabove.

35. A method according to claim 34, characterized in that the conductor layer is smoothed by a mechanical method such as, e.g., lapping, grinding or polishing.

36. A method according to claim 34, characterized in that the conductor layer is smoothed by electrochemical polishing.

37. A method according to claim 34, characterized in that the conductor layer is smoothed by chemicomechanical polishing.

38. A method according to claim 34, characterized in that the conductor layer is smoothed by chemical etching using, for instance, sulfuric acid, nitric acid or chromosulfuric acid.

39. A method according to claim 34, characterized in that the conductor layer is smoothed by ion etching.

40. A method according to claim 34, characterized in that the conductor layer is smoothed by bombardment with particles of individual or several atoms or molecules, such as, e.g, argon or argon clusters.

41. A method according to any one of claims 34 to 40, charac-

terized in that the conductor layer is smoothed over surface areas having the dimensions of 20 x 20 μm^2 to a maximum mean surface roughness of 10 nm and, preferably, 3 nm.

42. A method according to any one of claims 34 to 41, characterized in that the conductor layer is electrochemically reinforced.

43. A method according to any one of claims 34 to 42, characterized in that the printed circuit board is temporarily passivated by photolitography in the remaining areas prior to locally reinforcing the conductor layer.

44. A method according to any one of claims 34 to 43, characterized in that base body areas uncovered from the conductor layer are passivated by photolitographically assisted thin-film technology prior to attaching the remaining thin-film component.

45. A method according to claim 43 or 44, characterized in that a passivation layer is applied by thermal evaporation.

46. A method according to claim 43 or 44, characterized in that a passivation layer is applied by cold cathode coating.

47. A method according to any one of claims 34 to 46, characterized in that a flexible printed circuit board is used as said substrate.

48. A method according to claim 47, characterized in that the flexible printed circuit board is temporarily supported, at least during smoothing, by a stiffened layer and/or by being guided over a table.

49. A method according to claim 47 or 48, characterized in that a flexible printed circuit board sheeting unwound from a reel is used.

50. A method according to any one of claims 47 to 49, characterized in that a prefabricated flexible encapsulation sheeting is applied above the flexible printed circuit board sheeting provided with the thin-film component.

51. A method according to claim 50, characterized in that the encapsulation sheeting is unwound from a reel.